

Abstract of the Disclosure

Wireless communications devices, such as mobile telephones and pagers, has
have recently been allowed to operate at higher frequencies in the 27-32 Giga-Hertz
5 range. These higher-frequency devices typically include a multi-tiered electronic
assembly, which includes an integrated-circuit chip, a chip carrier, and a main circuit
board, with the chip carrier sandwiched between the chip and the main circuit board.
Testing these multi-tiered assemblies conventionally entails manually coupling test
probes to specific contact regions of the circuit board, applying test signals to the board,
10 and ultimately keeping or discarding the entire board based on the testing. This method
is not only slow and wasteful, but sometimes requires the circuit board to include extra
ground contacts that can disrupt normal circuit operation. Accordingly, the present
inventors have devised unique test probes and related systems and methods for testing
these and other high-frequency electronic assemblies. One unique probe structure
15 includes at least one signal contact surface for contacting a signal-port trace of an
electronic assembly and at least one substantially larger ground contact surface for
contacting a ground pad of the electronic assembly. In another unique probe structure, a
ground probe has a contact surface and a non-contact surface for overhanging a portion of
a signal-port trace and thereby establishing a desired characteristic impedance. And yet
20 another unique probe structure includes contacts for communicating electrical bias signals
to the electronic assemblies, facilitating more rapid and cost-effective testing.



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